The Madras Clinical Journal

Vol. XXVIII SEPTEMBER 1961 No. 3

CONTENTS

		Page
1.	Classification and Treatment of Anaemias: Some Recent Clinical and Experimental Observations on the Problem ... — E. Undritz	69
2.	Bullous and Vesicular Diseases ... ... — T. V. Venkatesan	81
	Case Report:	
3.	A Case of Massive Pneumonia Due to Friedlander's Bacillus Infection .. .. — N. Chandrasekaran	88
4.	Abstracts and Excerpts	93
5.	News and Notes ..	87 & 92
6.	Association Notes	98
7.	Obituary	100
8.	State Secretary's Circulars	103
9.	Refresher Course — C. D. M. A.	104
10.	Important Announcement	97
11.	Editorial Announcement . ... Cover	3

asthma!

TREATMENT WITH

RECOLVIN

Combines the specific therapeutic effect of B. P. and indigenous drugs.

SPASMS RELIEVED • COUGH LOOSENED

OCCASIONAL COURSES DURING NORMAL HEALTH PREVENT ATTACK

STANDARD PHARMACEUTICAL WORKS LTD., CALCUTTA

FOR CIRCULATION AMONGST MEMBERS ONLY

The Madras Clinical Journal

JOURNAL OF THE MADRAS STATE BRANCH OF THE INDIAN MEDICAL ASSOCIATION

(WITH WHICH IS INCORPORATED THE "MISCELLANY")

Vol. XXVIII September 1961 No. 3

CONNEMARA PUBLIC LIBRARY 21 SEP 1961 MADRAS

CLASSIFICATION AND TREATMENT OF ANAEMIAS: SOME RECENT CLINICAL AND EXPERIMENTAL OBSERVATIONS ON THE PROBLEM *

E. UNDRITZ, M. D.,
President, Swiss Haemotological Society.

The various forms of anaemia in India, particularly iron deficiency anaemia, protein deficiency anaemia and reactive anaemia due to worm infestation or chronic infections are, as in many tropical countries, of major social importance and their treatment constitutes a difficult problem of economics. But in Europe too, anaemia plays a great role. Iron deficiency anaemia in infants and women and anaemias due to infections and tumours, are still treated very perfunctorily. Treatment on a sufficiently broad basis is not yet general.

I wish to review some problems of haemoglobin formation and iron metabolism in the light of my clinical and, over the past 20 years, animal studies. However, I have not come here merely to tell you about my own findings; I also want to learn from you and to profit from your experience, for you have first-class haematologists working here in India and you have a wealth of observations on forms of anaemia which occur rarely or not at all in Europe. I refer in particular to the excellent work of Das Gupta, Banerjee and others of your countrymen.

Definition of anaemia: Anaemia is a condition in which the haemoglobin values are below normal. The absolute erythrocyte count, the haematocrit value, the colour coefficient, the colour index, the pro-erythrocyte (reticulocyte) count, the erythrocyte diameter, the normoblast content of the bone marrow, etc. are only of complementary importance, although they may under certain circumstances, be of vital importance to differential diagnosis.

Respiratory pigments: The haemoglobins occur in all vertebrates and in human beings. They are found exclusively in the erythrocytes. These

* Lecture delivered before the Madura Medical Association on 2nd March, 1961.

iron containing compounds give a positive Lepehne reaction which is specific and always renders good services in investigations. The respiratory pigments in the animal kingdom are fundamentally homologous to one another. Morophological differentiation of the erythrocytes in which they are present is often not possible, when they are obtained from the same class of animals.

Phylogenetic documents: Paleontological documents provide evidence of erythrocytes in vertebrates at a very early date.

Conclusion: The widespread occurrence of haemoglobin and of erythrocytes in the animal kingdom and their presence since early times show that they constitute a basic structure common to all animal life, as do muscle, cartilage and bone tissue. This fact provides the best answer to the objection that "animals are not human beings". As far as blood and haemoglobin are concerned, experimental findings in animals, particularly in mammals closely related to human beings can be extrapolated to apply to human beings. There are, of course, some reservations with regard to possible secondary differences which should be known to the investigator.

The activity of haemoglobin: Haemoglobin transports oxygen from the exterior world into the interior world of the organism. If the transport is blocked, for instance, by suffocation or haemorrhage, death ensues. The higher the animal, the more rapid the onset of death.

Iron metabolism: Iron is the most important functional component of haemoglobin. It takes up oxygen and then gives it off again without its valency being altered. Thus, iron metabolism provides the foundation for the haemoglobin cycle. It is, of course, dependent on many other circumstances.

Formation of. haemoglobin: Little is known of the biological chemistry of the formation of haemoglobin in the erythroblasts, the early stages of the erythrocytes. The microscope reveals that the protoplasm of the regional monocytes in the clumps of erythroblasts of the haematopoietic organs contains iron granules. In places this iron-containing protoplasm intermingles with the protoplasm of the erythroblasts. It is evident that the monocytes take up iron from blood and lymph and supply it to the red cells. In the worm *Notomastus lataeritius the erythrocytes* themselves contain a great number of iron granules—evidently a form of primitive self-supply.

The Lepehne reaction, which is specific to haemoglobin, shows how the youngest elements, the pro-erythroblasts, do not contain haemoglobin and how the haemoglobin progressively increases first in the basophilic erythroblasts, then in the polychromatic erythroblasts, etc.

THERAPEUTIC CLASSIFICATION OF ANAEMIAS:

A distinction is made between anaemias which respond to iron (iron-deficiency anaemias), anaemias responding to vitamin B_{12} complex (megalocytic anaemias), and other reactive anaemias which do not respond to iron or vitamin B_{12} and are "reactively aplastic" in a certain sense, but respond to cobalt which alone can normalise haemoglobin formation.

Mixed forms are not infrequent and necessitate correspondingly mixed treatment. For example, pernicious anaemia–the prototype of megalocytic anaemias–is relieved by vitamin B_{12}; this not only produces a pronounced new formation of normocytes but also results in an iron deficit requiring treatment with iron. (Das Gupta in Calcutta has paid particular attention to this problem). Anaemias due to infections and associated with iron deficiency require treatment not only with cobalt but also with iron, particularly in children and women. (I shall not refer to the protein-deficiency anaemia occurring in the tropics as I have no personal experience. However, I hope to hear some data on this from you).

The first requirement in the treatment of anaemia is, as in other conditions, the removal of the cause. Dangerously acute or chronic anaemias, e. g. that caused by haemorrhage, must be primarily treated with blood transfusions.

IRON-DEFICIENCY ANAEMIAS:

Distribution of iron in the organism: The distribution of iron in the body is well-known. The amounts present are as follows—(the lower figure is the generally accepted value today, the higher figure is that suggested by Heilmeyer): Body iron amounts to 4.3 — 5.5 g. comprising 2.4 — 3.0 g. haemoglobin iron and 1.3 — 2.5 g. tissue iron. Tissue iron consists of 0.2 — 0.5 g. myoglobin iron, 0.5 — 1.0 g. enzyme iron and 0.6 — 1.0 g. depot iron. Haemoglobin, myoglobin and enzyme iron are regarded as "functional iron".

Choice of preparation: Only bivalent iron is absorbed from the digestive tract. Trivalent iron requires an acid medium (hydrochloric acid) and the presence of sulfhydryl group or vitamin C to convert it into bivalent iron prior to absorption. Bivalent iron is practically as well absorbed in achylia as in the presence of hydrochloric acid. Bivalent iron is superior to trivalent iron for oral therapy and preference should always be given to it. The difference between ferrous and ferric iron with regard to absorption is smaller when gastric acidity is normal. However, in anaemias, particularly chronic iron-deficiency states, there is very often a deficiency or absence of gastric acid secretion so that the difference in absorption may be greater, and the absorption of ferrous iron may be 10—100 times better than that of ferric iron and reduced iron. In addition, the more iron salts, i. e. heavy metal salts, that have to be administered, the greater the likelihood there is of gastric upset, vomiting or even complete intolerance.

The keeping qualities of bivalent iron compounds vary greatly. Most compounds oxidize rapidly when allowed to stand or after sugar-coating and then become trivalent. This is true of the sulphate, chloride, lactate and succinate which are frequently used in practice. The conversion from bivalent to trivalent can be easily recognized: bivalent salts are, provided they are not mixed with any colour components, white to light brown, depending on the compound. Trivalent salts are dark brown to black. Ferrous gluconate has the remarkable property of remaining bivalent even for years. The contents of sugar-coated tablets manufactured seven years ago are still white. Analytical studies of ferrous gluconate kept in powder form for three years with free access to air show that the ferric iron

content rose from 5.2 per cent to 14.6 per cent only. The "hammer test"–breaking the sugar-coated tablets with a hammer–demonstrates this superiority of ferrous gluconate very impressively.

Anaemia in young animals and children: If young rats are placed on a milk and semolina diet, deficient in iron, the haemoglobin values fall by half while the body weight increases threefold. Haemoglobin values gradually return to normal when body weight becomes constant. If young rats remain with the mother and are given the normal iron-containing diet, haemoglobin values remain normal.

Studies have also been made in larger mammals–young elephants. These giant vegetarians can only live in their natural surroundings where the earth and water have a high content of iron. Sixty per cent of the young animals kept in captivity in Africa die of anaemia. (I would be interested to know what the situation is in India). If elephants in captivity are given iron in the correct dosage, corresponding to their body-weight, the anaemia is relieved and the animals remain alive. Here too the anaemia is seen to be due to an iron deficient diet and a "dilution" of body iron consequent on growth.

Fundamentally the same conditions are seen in human beings. Since 1878 (Lichtenstern in Germany) international statistics have demonstrated that haemoglobin values are dependent on age. Williamson in the United States published excellent statistics in 1917. In more recent years other statistics have been published in Great Britain, Finland, Australia and elsewhere. Even the most recent statistics give the same picture: high "super-normal" haemoglobin values in neonates, a fall by 50 per cent in the first six months of life, persistence of low values until the third year and then a slow recovery which is not complete until growth ceases about the twentieth year. The milk and cereal diet of infants and young children, which is common throughout the world, is, as was the case with our diet rats and the elephants in captivity, too deficient in iron to prevent the "dilution" of body iron consequent on growth and to prevent the fall in haemoglobin values. The fall in haemoglobin values coincides with the period of most rapid growth for in the first year a normal infant trebles its body weight. The weight of a prematurely born child may even increase sevenfold over this period; this makes the anaemia even more pronounced.

Together with Heimendinger I was able to show that this fall in haemoglobin levels is not at all normal and "physiological" as was previously assumed. All children, even infants, have after three months' treatment with iron, the same haemoglobin values as grown up women. After treatment with iron, infections and colds become less frequent and the children are more active. Since we made this study, the nurses in the children's homes request every spring and autumn that we provide them with plenty of Ferronicum.

Sex difference: It is known that men have higher haemoglobin values than healthy women (Vahlquist *et al.*). In children there is no sex difference with regard to haemoglobin. With the onset of puberty the haemoglobin content of women is markedly lower than that of men. My studies in

animals have confirmed the findings of other investigators and shown that this difference is not due to haemoglobin formation being inhibited by oestrogens in women, but to haemoglobin formation being stimulated by androgens in men. The haemoglobin values in women and children are not affected by sex hormonal factors. Only in men are the high haemoglobin values due to sex hormones.

Anaemia in women: Genuine iron deficiency states and mild and severe manifest anaemias are extremely frequent in women. I have given Ferronicum to all members of a few families and after three months' treatment have regularly noticed a more or less marked increase in haemoglobin values of the mothers and children, but not in the fathers. The chronic iron deficiency in mature women is due to the periodic loss of blood and iron which disturbs the fine balance. Foodstuffs generally contain just as much iron as is required, if it is assumed that 10 per cent is absorbed - this is a low absorption quota. More severe physiological blood loss or pregnancy inevitably leads to a negative iron balance. Just as in children, it is more fitting and economical to administer high-quality iron preparations than to recommend an especially iron-rich diet e. g. red meat and liver.

Effect of copper: Copper is very closely related to haemoglobin formation. Although the human organism contains 4—5 g. iron, it contains only 100—150 mg. copper. The daily copper balance amounts to 2 mg. The serum copper level is about 100 μg. per cent, but the greater portion of this copper is firmly bound as coeruloplasmin in an alpha-2-globulin complex, probably as an enzyme. Only about 10 per cent of the serum copper is freely available. This is weakly bound to proteins. Very little is known about copper metabolism. However, it is a fact that copper is absolutely essential for haemoglobin formation, even though only very slight amounts are necessary. In my opinion it is the best known and probably the most effective "erythropoietin", if one wishes to use such modern expressions. The optimal quantity required for a rat on a milk diet which exhibits not only iron deficiency but also copper deficiency is 0.7—7.0 μg. copper per 100 g. body weight per day. Smaller amounts are ineffective. Larger amounts do not have a greater effect. Extrapolated to adult human beings, this would be 0·5—5·0 mg. daily.

The macroscopic Prussian blue reaction renders good services in the assessment of iron in the inner organs and the evaluation of the effects of copper. The liver is the most suitable organ for demonstrating the presence of iron.

If young rats are rendered anaemic by a pure milk diet, the haemoglobin values become minimal. However, the presence of iron in the liver can still be demonstrated. If such animals are given iron only, the haemoglobin values rise to 50 per cent of normal values but not more, and the iron accumulates in the liver. If copper alone is given, the haemoglobin values rise to the same level as after iron alone, but the liver becomes completely empty of iron. Evidently the copper mobilizes the entire reserves of iron for haemoglobin formation. Only when both iron and copper have been given for a sufficiently long time, do haemoglobin values and the iron depots in the liver

become normal. A strange feature of these studies is that although the rats given iron alone all die, they die more slowly than the untreated rats on a milk diet, whereas the rats treated with copper remain alive in spite of the iron reserves being completely emptied. This shows that iron exerts no "protective" effect and that copper exerts an as yet unexplained "vitalising" effect which is not exerted by iron but, as we shall see later, is also exerted by cobalt.

Iron acts completely passively in erythropoiesis and the build-up of haemoglobin. It has to be stimulated to exert an exclusively "material" effect. Copper is such a stimulant.

The effect of copper can also be clearly demonstrated by the following experiment: when rats are on a milk and semolina diet instead of a milk diet, the haemoglobin values are lower in the untreated rats than in the rats given copper only. When iron or iron plus copper is given, both groups exhibit an identical rise in haemoglobin levels. Haemoglobin levels do not remain low in the rats treated with iron alone as is the case in rats on a pure milk diet. Moreover, no animal in any group dies. This effect is primarily due to the copper present in semolina. It is known that cereals, such as wholemeal, oats, etc. contain a large amount of copper.

Copper deficiency in the serum of anaemic human beings is very rare. It is most likely to be found in children on a pure milk diet. (I would be interested to hear whether this is true of India). In anaemia due to infection the serum copper levels may even be markedly raised. This does not imply that copper is available, for serum copper is strongly bound. However, there may be an occult deficiency. As little is known about copper metabolism, it is therefore advisable to administer copper in addition to the basic treatment in cases of anaemia refractory to therapy (and in aplastic anaemias). A great advantage is that only very small amounts are necessary as copper requirements are low and well-tolerated organic preparations are available. Copper therapy is easy to carry out. Monovalent and bivalent compounds, organic and inorganic compounds, water-soluble and insoluble salts are all quantitatively equally effective, so that the selection of a copper preparation presents no difficulties. However, the copper salt selected must be non-toxic and well tolerated. My investigations have shown that copper leucinate is such a compound. In mice the acute toxicity (LD 50) is one-sixth of that of copper sulphate after 24 hours and two-fifths of that of copper sulphate after ten days.

Masked iron deficiency: This was recognised in 1840 by Becquerel and Rodier and again by Sahli (masked chlorosis) at the beginning of this century, but was subsequently forgotten. When I showed that masked iron deficiency could be easily produced in animals, Jasinski and others resumed clinical investigations of masked iron deficiency. Thedering considers masked iron deficiency is the most frequent deficiency disease of mature women in central Europe. However, doctors still know far too little about its recognition and treatment. Women often do not tell the doctor that they have been losing small amounts of blood over a long period of time.

Iron absorption in healthy male blood donors was recorded. The findings confirmed those reported by other investigators and showed that iron deficiency was present in spite of the haemoglobin values being normal. It is generally realised today that iron deficiency may occur even in male blood donors. Our investigations showed that men develop masked iron deficiency if they donate more than one litre of blood per year. One can and should donate blood, but donors with masked iron deficiency should be given iron.

The symptons and signs of masked iron deficiency are to some extent the same as those of manifest anaemia. However, in masked iron deficiency the haemoglobin levels are normal so that the symptoms and signs cannot be attributed to haemoglobin deficiency. The animal studies of Beutler, as well as clinical observations, suggest that the symptoms and signs of anaemia, particularly the atrophy of the mucous membrane in the digestive tract and hyposecretion, are due to cytochrome deficiency; today we know that the level of cytochrome, an enzyme containing iron, is subnormal in iron deficiency.

The sequelae of iron deficiency are, therefore, firstly a decrease in cytochrome levels, then a decrease in haemoglobin levels and, finally, a decrease in iron reserves. When adequate amounts of iron are given, first the cytochrome levels are normalised, then the haemoglobin levels and, finally, the iron reserves.

Purely "material" effect of iron : Mention has alredy been made that erythropoiesis is stimulated by iron deficiency and not by iron. Iron deficiency leads to a relative or absolute erythrocytosis, proerythrocytosis in the blood and an increase in the number of normoblasts in the bone marrow. When iron is administered, the haemoglobin level rises and these signs of irritation disappear. The rise in the haemoglobin levels used to be regarded as an "irritant" effect, but it is in fact a purely "material" effect, for it is not produced by iron alone. Copper is necessary as a stimulant. Striking evidence that iron *deficiency* exerts an "irritant" effect is provided by histological studies of the rat spleen. The spleen of normal rats is erythropoietically active but only to a slight degree. In addition to the lymph follicles there are a few small myeloic foci with normoblasts. If the rats are rendered anaemic, enormous proliferation of the normoblasts develops but disappears when sufficient iron is given.

THE MEGALOCYTIC ANAEMIAS :

Administration of iron : The megalocytic anaemias are due to a deficiency of the vitamin B_{12} complex. I have actually not made any pharmacological investigations relevant to this problem. It is of interest to note that these anaemias may be associated with iron deficiency as soon as specific treatment with vitamin B_{12} elicits an optimal effect. The iron reserves, which are usually very full, are soon depleted and iron must be given in addition to vitamin B_{12} so that the patient may make a complete recovery. The dangers involved in supplementary iron deficieny are not very great, as this disease generally occurs in elderly patients where the iron balance is in a better state of equilibrium, even in women.

Vitamin B_{12} balance studies : In mentioning vitamin B_{12}, I have already touched on the cobalt problem, for

vitamin B_{12} contains 4 per cent cobalt. Patients with pernicious anaemia, the classical vitamin B_{12} deficiency disease, require a daily maintenance dose of up to 1 μg. vitamin B_{12}. This corresponds to 0.04 μg. cobalt. In the absence of cobalt vitamin B_{12} is inactive. Cobalt alone exerts no effect in pernicious anaemia. It is only the entire vitamin B_{12} complex that is effective.

" APLASTIC " ANAEMIAS :

Cobalt as a drug : While treatment with iron, copper and vitamin B_{12} may be regarded as genuine substitution therapy, this is not true of cobalt treatment of aplastic anaemias. Here the pharmacodynamic effects of cobalt ions are required. The amount of cobalt required is not provided by any diet. Adults require 15—30 mg. cobalt by mouth each day. This is 750,000 times more than a case of pernicious anaemia receives in the form of vitamin B_{12} parenterally. Nevertheless, 30 mg. cobalt is still a small amount. The effects which cobalt exerts are pharmacodynamic and not physiological.

Indications for cobalt : These are the reactive aplastic anaemias accompanying infections, especially tuberculosis, rheumatism, malignant tumours, leukaemia, nephritis, immunopathological haemolysis, myxoedema, etc.

Pathogenesis : The anaemias which do not respond to iron and vitamin B_{12} but respond to cobalt, evidently have a pathogenetic mechanism in common. The mechanism involved has not yet been elucidated. It is probably an inhibition of normal erythropoiesis, particularly haemoglobin production. The iron accumulates in the stores even when given intravenously. My investigations suggest that toxic factors, particularly toxic allergic factors upset the synthesis of haemoglobin. It is striking that cobalt overcomes this upset and normalises haemoglobin formation.

Cobalt in normal animals and human beings: Cobalt disturbs the normal regulation of the red cell count and haemoglobin in that it produces an unphysiological increase. Many theories have been offered in explanation of this. The best known is that of Weissbecker who suggested that it was due to aredoxia. In practice this amounts to anoxaemia. More recently it has been suggested that the effect of cobalt is due to an increase in those mysterious erythropoietins (Goldwasser, Jacobson, Fried and Plzak).

This is evidently an absolutely indirect effect. As my investigations show, there are no qualitative changes in erythrocyte count, haemoglobin content, serum iron and storage iron. Iron, copper and vitamin B_{12}, even given in very high doses, do not increase normal erythropoiesis.

The effect of cobalt in healthy subjects can best be demonstrated by means of haemoglobin studies. Erythrocyte values exhibit a greater scatter and and are not so reliable. When I refer to "cobalt polyglobulia" to depict the effects of cobalt, I am thinking more of an increase in haemoglobin than of an increase in the number of erythrocytes. The rise in the haemoglobin is in direct proportion to the amount of cobalt administered.

Choice of preparation : Cobalt polyglobulia in normal rats is a good test to show whether pure or mixed cobalt preparations are effective. For example, this test shows that cobalt versenate is completely ineffective.

In the selection of a cobalt preparation, one has to be even more cautious than in the selection of an iron preparation where attention has to be paid to valency and to the fact that not all preparations exert an optimal effect. It seems that bivalent and certain trivalent cobalt compounds work equally well. However, the effect seems to be greatly modified, if not completely abolished, by some vitamins of the B group, by vitamin C and by compounds containing sulfhydryl groups such as cysteine. For this reason vitamins should not be given at the same time. If both are required as, for instance, in the treatment of anaemia of premature infants, then they should be administered at different times.

The widely used inorganic compounds, especially cobalt chloride, exert a good haematopoietic effect, but are frequently very poorly tolerated. Organic cobalt compounds are better tolerated and are just as effective. It is generally necessary to administer sufficient quantities of iron at the same time as cobalt, particularly in children and women. Non-toxic and well-tolerated preparations should therefore be selected. A combination of iron and cobalt should not be used, if iron alone is effective.

Toxicity: I investigated various organic and inorganic compounds and finally selected cobalt glutaminate. In acute toxicity studies it is half as toxic as the chloride or the sulphate. In chronic toxicity studies in rats an organic heavy metal mixture and an inorganic heavy metal mixture were given for 230 days. Three dosage levels were used. The organic compounds studied were ferrous gluconate, copper leucinate and cobalt glutaminate. The inorganic mixture consisted of sulphates. The erythropoietic effects of the two combinations were identical but the toxicity of the inorganic mixture was significantly higher; animals given the highest doses of the inorganic combination died after about 6 months, while animals given the same dosage of the organic combination were still alive after six months.

Minimal therapeutically effective dose of cobalt in dietary anaemia of the rat: The dose of cobalt which just does not produce polyglobulia in the normal rat is fully effective in anaemia. This dose corresponds to 15 mg. cobalt daily in adult human beings. Simunic regards this amount as generally satisfactory in clinical practice.

Cobalt given to animals rendered anaemic by a milk diet exerts no effect at all on haemoglobin. Copper and iron have, as already mentioned, a very moderate effect. The same is true of cobalt plus copper. By contrast, iron plus copper has an almost optimal effect. However, the anaemia is completely relieved only by the combination of iron, copper and cobalt.

"Vitalising" effect: As already mentioned, both untreated rats on a milk diet and rats treated with iron only die. The animals given copper remain alive and, what is more striking, so do those treated with cobalt in spite of the very low haemoglobin values. The observation that cobalt exerts a "vitalising" effect may be of importance in keeping premature infants alive. Kundratitz and his associates observed that our combination preparation achieved this in addition to exerting a beneficial effect on haemoglobin levels.

Combined therapy with cobalt + iron + copper: In animals with iron deficiency the administration of cobalt

without iron is completely ineffective. For this reason we always recommend treatment with cobalt + iron, particularly in children and mature women who are often anaemic or tend to be anaemic. The addition of copper to the combination of cobalt + iron is also advisable, as already mentioned.

Cobalt in experimental anaemia due to infection: In recent years I have endeavoured to produce experimentally and to treat anaemia due to infection, anaemia due to tumours and haemolytic anaemia, for these are the main indications for cobalt. Only one such investigation has been previously made and that was by Wintrobe and his associates. The model they used was the anaemia produced by sterile turpentine abscesses. Cobalt prevented the development of this anaemia or lead to its recovery.

I noted the same results in rabbits and rats given intratesticular injections of dead tubercle bacilli. The anaemia produced in this way is identical with that produced by virulent inoculation, but the animals do not die and can be observed for a long time. We were able to completely prevent the development of anaemia with cobalt given intravenously, intramuscularly or by mouth, but iron and copper alone or combined were ineffective. It is of interest that the optimal dose of cobalt was below that producing polyglobulia. Half of this amount was completely ineffective.

Mechanism of anaemia due to infection: Some twenty years ago, I carried out a study with Dr. Brack, but our findings were not published at that time. We found that the anaemia is most severe when the tuberculin skin sensitivity is greatest as shown by the Mendel-Mantoux quantitative method. As the tuberculin sensitivity decreases, the anaemia is relieved. It is, therefore, due to toxic-allergic factors.

A further observation which we made is that iron accumulates in the giant cells of the granuloma. The giant cells which often contain tubercle bacilli are formed in the same way as in virulent tuberculosis. This finding also supports the view that the giant cells in tuberculosis, parasites and foreign bodies are highly polyploid monocytes.

Cobalt in experimental malignant tumours: Preliminary studies have been made on Guerin's uterus epithelioma, for it was known that animals with this condition are anaemic. The administration of cobalt checked the further development of the anaemic process. Towards the end, when there was very marked metastasis and the tumours ulcerated, the effect disappeared. This observation is in accord with the clinical findings of Simunic, who noted improvement in haemoglobin values in anaemia accompanying non-generalised tumours, but noted no improvement when there was extensive metastasis particularly in the bones. Cobalt has no influence on the mortality rates. The rats die just as rapidly (on an average after 30 days), as the untreated rats. Cobalt seems to have no influence on the development of the tumour. However, the animals given cobalt can be recognized from the darker colouring of their organs which is due to the higher haemoglobin values.

From a clinical point of view, the value of cobalt therapy in tumours is seen in the marked improvement in general condition due to the relief of the troublesome and complicating

symptoms of anaemia. Clinical investigations by Thedering stress that cobalt has neither an exacerbating nor an inhibiting effect on the development of malignant tumours.

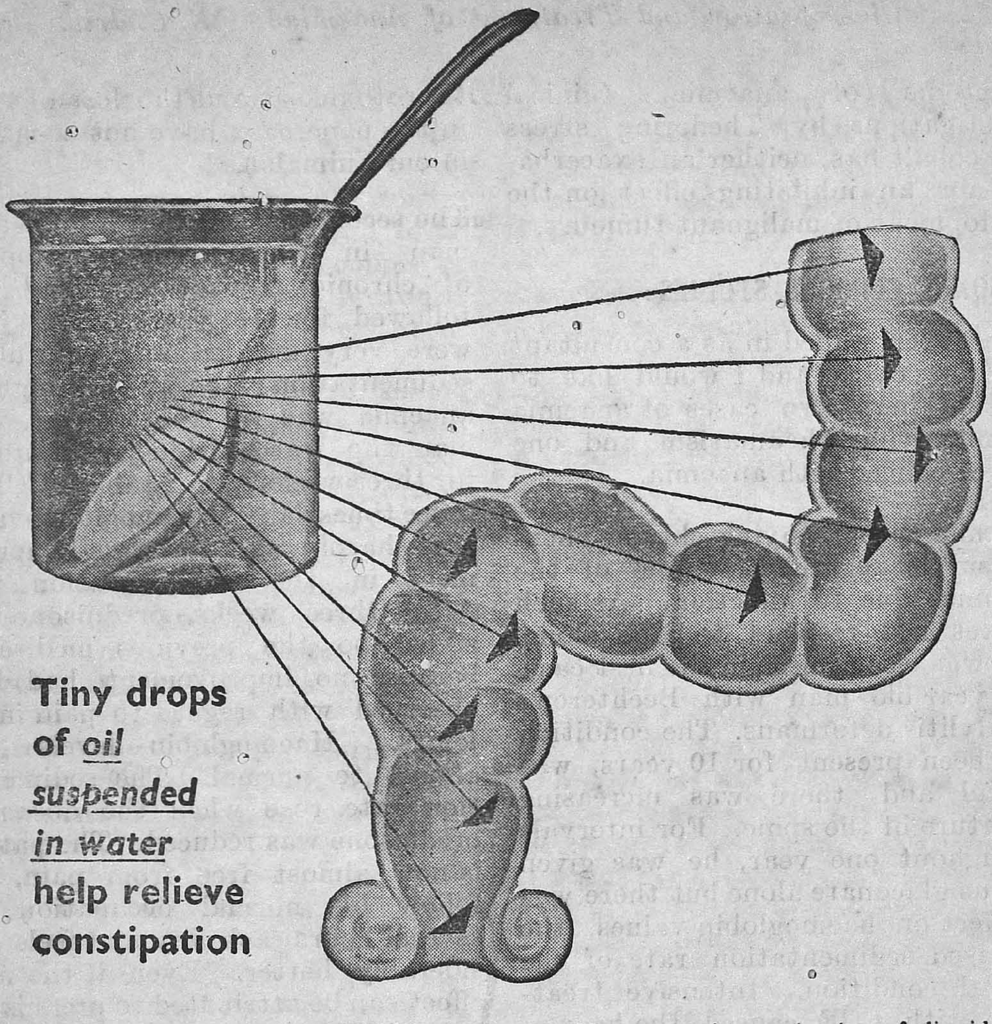
PERSONAL CLINICAL STUDIES:

I have been called in as a consultant in a few cases and I would like to mention here two cases of anaemia accompanying rheumatism and one case of cancer with anaemia.

Anaemia accompanying chronic rheumatism is regarded as one of the anaemias due to infection. As such it does not respond to iron alone. This was clearly seen in the first case, a 41 year old man with Bechterews spondylitis deformans. The condition had been present for 10 years, was painful and there was increasing curvature of the spine. For intervals throughout one year, he was given ferrous gluconate alone but there was no effect on haemoglobin values, the increased sedimentation rate or the general condition. Intensive treatment with CCF caused the haemoglobin values to rise to above normal. Two years later they were around the normal mark. The sedimentation rate exhibited fluctuations but in general has shown improvement. Particularly striking was the fundamental improvement in the patient's general condition. He now feels better than he has ever felt for ten years. He continues to take small doses of cobalt. No side-effects have developed. (In this connection I would mention that the side-effects mentioned in the literature, such as thyrotoxicosis and the loss of A cells in the pancreas, have not been noted in our animals).

The second patient was a 63 year old man in whom the development of chronic polyarthritis had been followed for 4½ years. The joints were very swollen and painful, the sedimentation rate was very high and anaemia was all too evident. The man who was bedridden was treated for three weeks with 2 tablets CCF 37, three times daily. Haemoglobin values rose sharply and there was improvement in the sedimentation rate. After three weeks, prednisone was added to the previous medication because no improvement had been observed with regard to pain in the joints. Haemoglobin levels rose almost to normal. The sedimentation rate rose when the dosage of prednisone was reduced. The patient is now almost free from pain, can follow his normal occupation for several hours each day and feels considerably better. Even if the main effect can be attributed to prednisone, it is clear that cobalt resulted in a rapid improvement in the anaemia.

Finally, I would mention a woman with elliptocytosis and carcinoma of the breast which had been treated surgically. She exhibited anaemia refractory to iron. When treated with CCF 37, her haemoglobin values rose from 53 per cent to 107 per cent within four months. What was of particular value in this case was the marked improvement in subjective symptoms; the patient felt really well again.



Tiny drops of *oil* *suspended* *in water* help relieve constipation

PETROLAGAR provides a moderate intake of liquid paraffin in the form of a water-miscible suspension.
This oil-in-water combination permeates the faecal residue to produce:

- Gentle lubricant action, without "leakage"
- Soft, nonirritating, easily passed stools
- Comfortable bowel movement

PETROLAGAR may be taken alone or in milk, water or fruit juices—with which it is readily miscible.

Wyeth

PETROLAGAR*

PLAIN • PHENOLPHTHALEIN • FORTE

JOHN WYETH & BROTHER LIMITED, LONDON
(Incorporated in England with Limited Liability)
Indian Branch: Steelcrete House, Dinshaw Wacha Road, Bombay I.

* Trade Mark

I. 72

BULLOUS AND VESICULAR DISEASES

T. V. VENKATESAN, M. B., B. S., F. A. A. D. S., F. I. A. A., F. D. S. (Lond.), F. A. I. M., F. A. C. A., F. C. C. P., (USA),
Honorary Physician, Erskine Hospital, Madurai.

A vesicle is an elevation containing fluid not more than 5 mm. in diameter. A bulla is an elevation containing fluid more than 5 mm. in diameter. For simplicity, we will use the word bulla to describe the group of diseases having vesicular and bullous lesions. The bullae may arise at different levels in the skin. The bullae may be subcorneal, intraepidermal as well as subepidermal.

1. *Subcorneal bullae* are seen in impetigo due to bacterial toxins acting on the intracellular ground substance between the cells of the upper layers of the epidermis. Such bullae may be seen in eczema. The clefts which are formed are filled with serum as well as polymorphonuclear cells from the dermis.

2. *Spongiotic bullae* occur in dermatitis and eczema. There is degeneration of the subcorneal cells. There is spongiosis or intracellular oedema which disrupt the bridges between the Malphigian cells forming a bulla. (See Fig. 1)

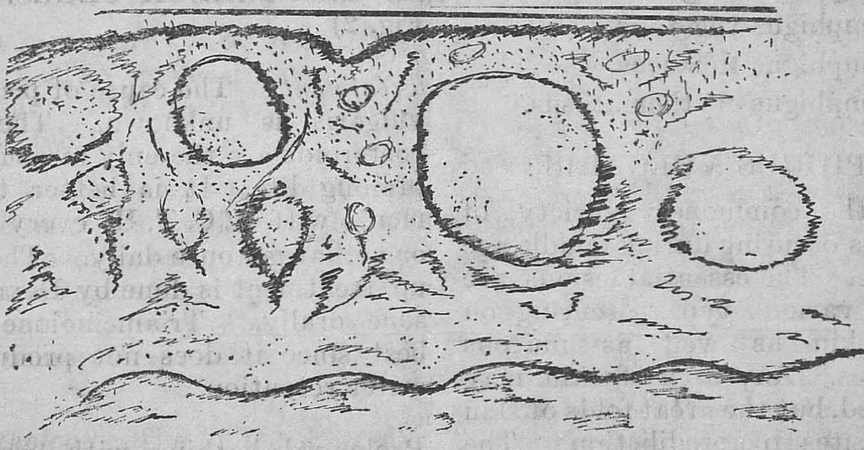


FIG. 1: Spongiotic bullae in eczema spongiosis and intracellular oedema in the surrounding epidermis.

3. *Miliarial bulla:* There is sweat retention as a result of closure of the sweat pores by swollen keratin. The bullae may be intracorneal (miliaria crystallina) or may be intraepidermal (miliaria rubra).

4. *Acantholytic bullae* arise from dissolution of the intracellular bridges of the rete malphagi. The causes are not known. The detached epidermal cells lie free in the bullae, eg. Pemphigus vulgaris.

5. *The viral bullae:* These are the result of two types of degenerative changes in the epidermal cells. They are seen in herpes simplex, zoster, variola and varicella. The bullae are at first intraepidermal but may

become subepidermal as a result of a downward spread of the degenerative process. The reticular degeneration takes place resulting in multilocular bullae.

6. *Pressure bullae* are subepidermal and result from an elevation of the entire epidermis by fluid collecting at the dermoepidermal junction, eg. bullous pemphigoid; dermatitis herpetiformis.

7. Bullae due to degeneration of subepidermal reticulum fibres occur in cases of burns.

A. PEMPHIGUS ESSENTIALLY A BULLOUS LESION:

Under this group are discussed the following varieties:

1. Pemphigus vulgaris.
2. Pemphigus vegetans.
3. Pemphigus foliaceus.
4. Pemphigus erythematosus.

I. PEMPHIGUS VULGARIS:

This is the commonest variety of pemphigus occuring during middle age or old age. The essential lesions are bullae of various types occuring on normal skin as well as mucous membranes. Any area of skin may be involved, but the great folds of skin are the sites of prediliction. The lesions are flaccid which arise over normal skin. The bullae are soft and break before they attain a large size. The epidermis easily detaches on lateral tension. This is called Nikolosky's sign. The bare areas heal slowly without any obvious scar or pigmentation. Nikolosky's sign is demonstrated by pressing downwards and sidewards against the skin. The sign must be more properly called Stukowenko's sign after his teacher.

The lesions occuring over the buccal as well as ocular mucous membranes are tender. The patient may experience difficulty in taking food. The secondary infection may lead to a rise of temperature. The progress of the disease is characterised by anorexia, nausea, vomiting as well as cachexia. The blood shows eosinophilia. Pulmonary infection and uraemia may complicate the picture.

Histopathological features of pemphigus vulgaris: There is degeneration of the lower layer of the stratum malphigi with acantholysis. Clefts and bullae occur above the basal cell layer with fluid. In the fluid there are single cells or groups of degenerated cells with round swollen hyperchromatic nuclei surrounded by a narrow ring of cytoplasm. These are called TZANCK CELLS. (Vide Fig. 2)

Treatment: The cause of pemphigus vulgaris is unknown. The corticosteroids are the only measure that prolong life. It is better to commence with A. C. T. H. every 6 hours or acthar gel once daily. The follow up treatment is done by Dexamethasone orally. Triamcinolone is the best since it does not produce any water retention.

Prolonged bathing with potassium permanganate solution is useful. The mouth may be sprayed with 5% cocaine before meals.

Broad spectrum antibiotics as aureomycin or tetracycline group are useful for infections of the skin.

Germanin, mepacrine and arsenicals, once used, are now given up. Some French writers recommend a combination of mepacrine and aureomycin and claim better results.

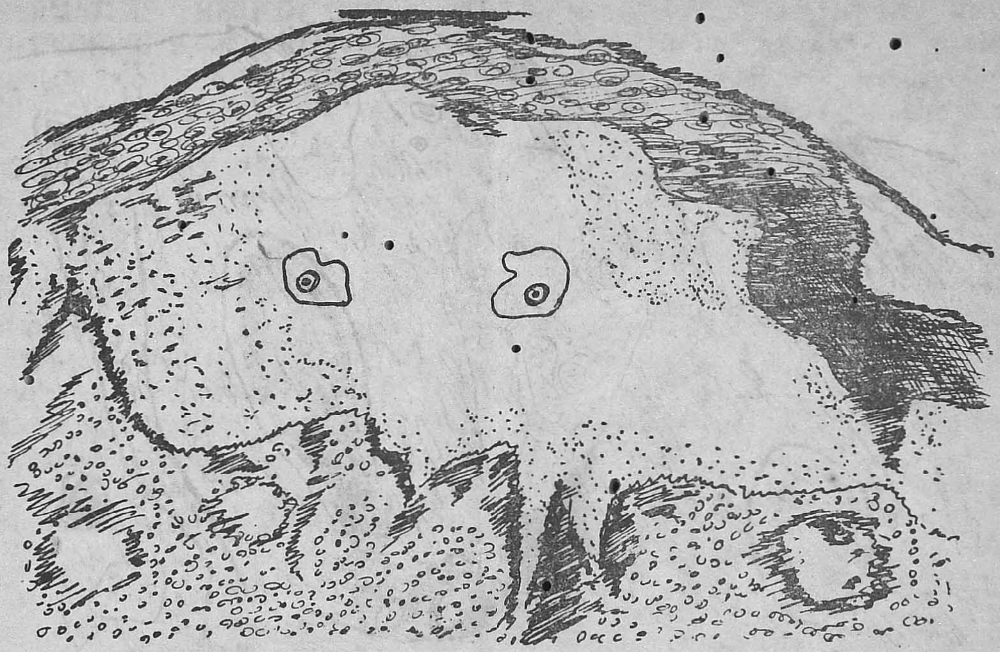


FIG. 2: Pemphigus vulgaris, acantholysis and tzanck cells.

II PEMPHIGUS VEGETANS:

This is a rare variety of pemphigus vulgaris. The general symptoms are languor, malaise as well as a moderate febrile reaction.

The skin lesions commence as bullae over the skin as well as buccal mucous membrane. The bullae rupture and vegetating masses appear. The vegetations may also arise de novo. Eosinophilia is often a marked feature.

Histopathology : The bullae show the same clinical features as pemphigus vulgaris. The vegetating lesions are characterised by papillamatosis, acanthosis and downward growing strands of epidermis. (Vide Fig. 3)

Treatment is similar to pemphigus vulgaris.

III. PEMPHIGUS FOLIACEUS:

This occurs in young adults. The mucous membranes are not involved. Alopecia and loss of nails may occur. Superficial flaccid bullae appear over the face and neck and spread to other parts of the body. These rupture easily. Nikolosky's sign is positive. There are exacerbations as well as remissions, but usually the condition terminates fatally, probably an infective condition is a contributory factor. A similar condition occurring in Brazil is known as Fogo selvagium.

Histopathology : The bullae are formed high up in the epidermis immediately under the stratum granulosum. Degenerate epithelial cells are seen loose in the bullae. The dermis shows cellular infiltrate in which eosinophilia cells are prominent. (Vide Fig. 4)

Treatment : A. C. T. H. and corticosteroids control the disease.

IV PEMPHIGUS ERYTHEMATOSUS:

Or Senear usher syndrome. The disease presents lesions suggestive of lupus erythematosus, seborrhoea dermatitis and pemphigus. The face shows small erythematous scaly

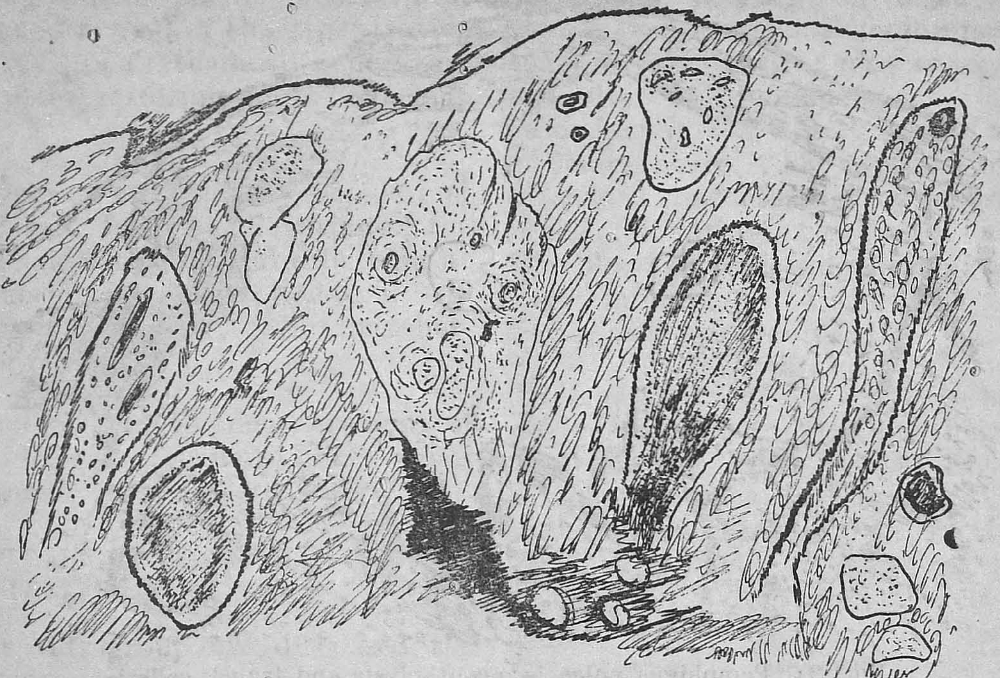


FIG. 3: Pemphigus vegetans, intraepidermal bullae and intraepidermal abscesses.

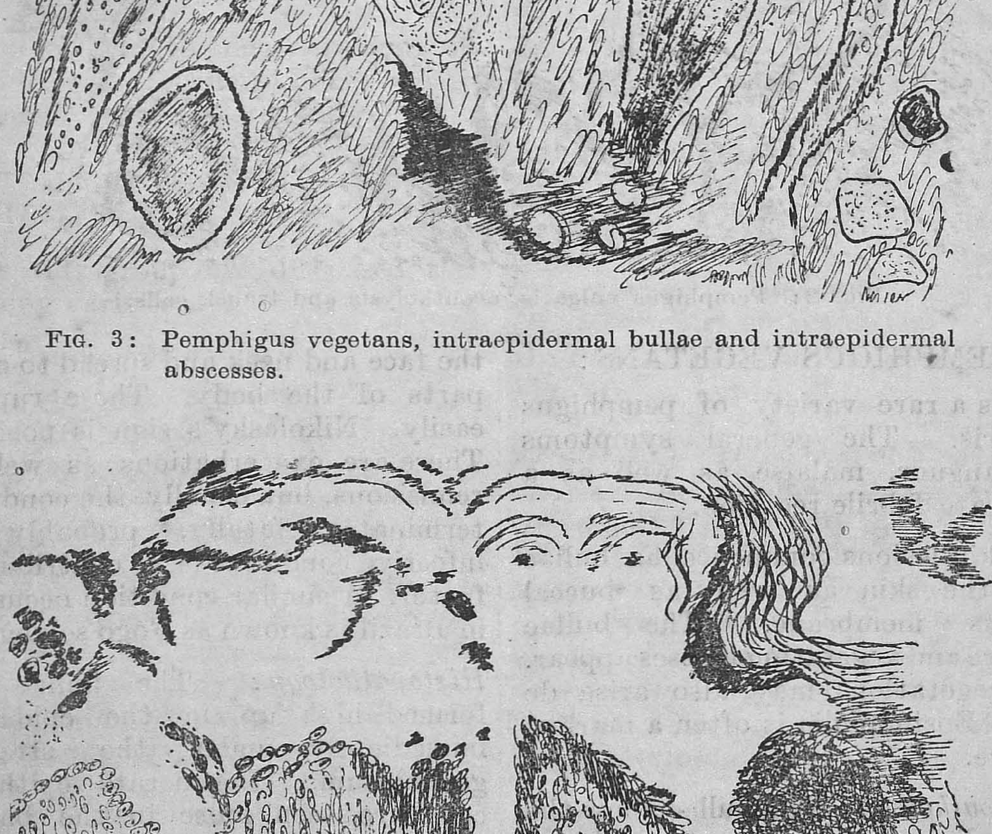


FIG. 4: Pemphigus foliaceus—Detachment of horny layer.

lesions. Over the trunk there are flaccid bullae which become eroded or crusted.

Histopathology: The picture resembles pemphigus foliaceus with hyperkeratosis and degenerative changes in the cells of the stratum granulosum.

Treatment: Corticosteroids are palliative but not curative.

B. **DERMATITIS HERPETIFORMIS OR DUHRING BROCQ DISEASE:**

Aetiology: Unknown.

Age group: Any age group, but more common in adolescents and young people.

Clinical features: There are multiple varieties of lesions so that the description *dermatitis polymorphae doulourense* is appropriate. The eruptions are symmetrical and may be localised or generalised on the trunks and limbs. The various types of lesions are vesicles, bullae, pustular lesions, papules, papulo vesicles, erythematous plaques, urticarial rashes and rarely vegetating lesions. Lesions may occur over the buccal, pharyngeal, nasal as well as ocular mucous membranes.

The lesions heal leaving hyperpigmentation. The administration of iodides will aggravate the disease.

Histopathology: There is subepidermal vesicle or bulla. The cells of the bulla are predominantly eosinophilis. (Fig. 5)

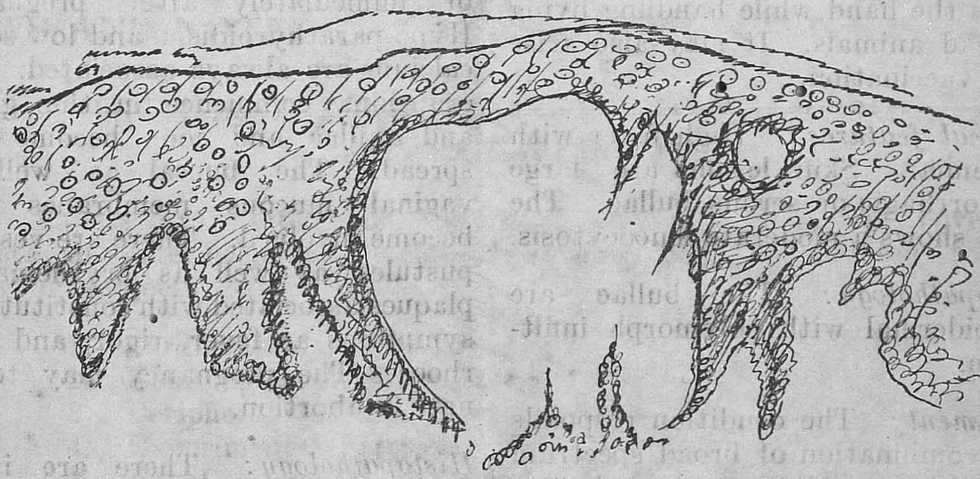


FIG. 5: Subepidermal bullae.

Treatment: Local measures are purely symptomatic.

External: Calamine lotion with 2% phenol or talcum powder. Systemic measures are:

1. D. D. S. 0·1 to 0·3 gm. daily.
2. Sulfapyridine 0·25 gm. twice daily.
3. Arsenic as liquor arsenicalis. Dose: 0'2 cc. in water or acetarsone 0·25 gm. tablet one daily.
4. Corticosteroids.
5. Mepacrine.
6. Germanin and nicotinic acid.

C. **BULLOUS PEMPHIGOID:**

Disease of old people. There are more or less generalised large tense bullae. They break. The resulting denuded areas do not increase materially like pemphigus. The course is chronic, coremittent.

Treatment is similar to pemphigus.

Histopathology: The bulla is subepidermal in the centre and intraepidermal at the periphery.

D. BENIGN MUCOUS MEMBRANE PEMPHIGOID or PEMPHIGUS CONJUNCTIVAL:

The disease is known as ocular pemphigus. The lesions are subepidermal caused by sub-epidermal cleavage without acantholysis. The sites are mucous membranes of the eyes and also there are perianal as well as genital lesions. The condition may progress and lead to blindness.

Butcher's pemphigus or acute pemphigus: The condition is a sequel of a cut in the hand while handling living or dead animals. It may also arise after vaccination.

Clinical features: High fever with toxaemia. Skin lesions are large haemorrhagic or serous bullae. The blood shows a moderate leucocytosis.

Histopathology: The bullae are subepidermal with polymorph infiltration.

Treatment: The condition responds to a combination of broad spectrum antibiotics, corticosteroids and vitamin P.

E. SUBCORNEAL PUSTULAR DERMATOSES OF SNEDDON-WILKINSEN:

Age: Middle age.

Sex: Women are more commonly affected.

Clinical features: The skin lesions are flaccid vesicles which soon become pustular, which dry up, form crusts which leave later brownish pigmentation. The lesions are found on the trunk as well as limbs but are more commonly over the flexures. The face as well as mucous membranes are not involved. Subcorneal pustular dermatoses may have superficial resemblance to dermatitis herpetiformis.

Histopathology: The bullae are subcorneal and full of polymorphs. The underlying epidermis is oedematous. The dermis is infiltrated with polymorphs. The cultures of pus in the bullae are sterile.

Treatment: The condition responds to sulphones, sulfapyridine as well as cortisone.

F. IMPETIGO HERPETIFORMIS:

This affects women usually during or immediately after pregnancy. Hypo-parathyroidism and low serum calcium are always associated. The eruptions commence in the groins and axillae and soon become wide spread. The buccal as well as vaginal mucous membranes may become involved. There are vesicles, pustules as well as erythematous plaques associated with constitutional symptoms as fever, rigor, and diarrhoea. The pregnancy may terminate in abortion.

Histopathology: There are intraepidermal pustules with polymorph as well as eosinophilic infiltration.

Treatment: Though there is a septicaemic like stage suggesting infection, response to antibiotics is poor. The various measures suggested are corticosteroids, androgens, parathyroid hormones as well as calcium. Impetigo herpetiformis is regarded as a syndrome rather than as an entity.

G. FAMILAL BENIGN, CHRONIC, PEMPHIGUS OF HAILEY AND HAILEY:

This is a rare familial disease. The condition is characterised by recurrent vesiculo-bullous lesions over the back

and sides of the neck, the groins, axillae and elsewhere. These bullae are small flaccid erythematous plaques. The rupture of the bullae leaves a raw surface. There is severe pruritis.

Histopathology : The bullae are suprabasal. There is acantholysis, but the cells loose in the cavity are normal in appearance and not degenerate cells as Tzanck cells of pemphigus vulgaris.

Treatment : There is no specific measure. Topical antibiotics are useful.

NEWS AND NOTES

INTERNATIONAL SEMINAR ON ARTERIOSCLEROSIS, BOMBAY
3rd, 4th & 5th FEBRUARY, 1962.

Papers are invited for the above Seminar which will cover all aspects of arteriosclerosis. Special sessions will be devoted to the following subjects:

1. Cardiovascular Arteriosclerosis
2. Neurological Arteriosclerosis
3. Peripheral Vascular Arteriosclerosis
4. Experimental Arteriosclerosis
5. Panel discussion on Arteriosclerosis, which will be of special interest to general physicians.

It may be possible to arrange for return air/first class rail fares for those whose papers are selected for presentation at the Seminar. In addition, they will stay in Bombay for the duration of the Seminar as guests of the Organising Committee. The last date for receiving summaries is December 1st 1961. They should be sent to:—

Jt. Organising Secretaries,
International Seminar on Arteriosclerosis,
K. E. M. Hospital, Bombay-12.

The last date for registration of delegates is December 1st, 1961. There is no registration fee, but early registration is advisable as otherwise it may be difficult for the Organising Committee to arrange for accommodation. As international celebrities are expected, the Seminar will be widely attended.

CASE REPORT

A CASE OF MASSIVE PNEUMONIA DUE TO FRIEDLANDER'S BACILLUS INFECTION

N. CHANDRASEKARAN, M. B., B. S.
Chandar's Clinic and Nursing Home, Cuddalore N. T.

Massive pneumonia is a rare type of lobar pneumonia and Friedlander infection in lobar pneumonia is uncommon, if not rare,—uncommon in the sense, that it is not commonly thought of in general practice, so that, with proper vigil and investigation, more cases will be recognised and the mortality and morbidity reduced. It is a gram-negative cocco-bacillus, capsulated, sometimes found as throat commonseal, causing more frequently broncho-pneumonia. It more commonly affects the older age group, especially alcoholics. This infection is a grave infection of the lungs, not affected by penicillin and in the absence of specific therapy, quick cavitation and abscess formation occur, if the patient survives the infection.

Name: Rajagopala Chetti; Age: 50 years. Admitted: Night of 22-4-1961, for fever and severe cough of about five days' duration; illness starting suddenly—five hours after a river bath; occurrence of any reflex cough due to accidental aspiration of water -denied by the patient.

Previous history: Always in good health; no previous cough, but a bad alcoholic.

Condition on admission: Fever - 102°F; Pulse rate-110 per minute, with moderate dyspnoea and with a respiratory rate of 42 per minute; B. P. 110/80; no cyanosis; somewhat emaciated.

Chest: Signs of pleural effusion with stony dullness, diminished V. F. and absent breath sounds over the back of the chest on the left side, elicited upto the level of the upper border of the seventh rib and laterally as far as the posterior axillary line not encroaching on the cardiac dullness, without any displacement of the apex beat.

Such a clinical diagnosis fits in with the rare condition of massive pneumonia characterised pathologically by a fibrinous exudate filling not only the alveoli, but also the bronchi (explaining the signs of pleural effusion). Liver and spleen not enlarged.

Heart: Apex beat - not displaced. Normal sounds. Total W. B. C. 9000 per c. m. m. Poly - 63 per cent. Lympho-31 per cent. Eos-6 per cent. Hb-60 per cent (Hellige).

Urine: Albumin plus, no pus cells. Few granular casts. No sugar. No uriobilinogen.

Treatment adopted and progress: Night of admission (22–4–1961): Procaine penicillin-8 lakhs statum and coramine 1 amp. I. M.

23–4–1961: Crystalline penicillin - 5 lakhs per dose, thrice daily.

Exploratory aspiration: No fluid of any description drawn - excluding pleural effusion, confirming massive pneumonia. The temperature ranges between 101 and 102·5°F.

24-4-1961 : Repeat penicillin and coramine injections.

25-4-1961 : No change in temperature. Penicillin 5 lakhs b. d. and one G. streptomycin added. X-ray of chest-massive pneumonia left lung.

26-4-1961 : Penicillin stopped and from the 26th to the 30th of April, only streptomycin one gramme per day with supportive treatment. From the 23rd to the 30th of April 1961, repeated examination of sputum revealed no tubercle bacelli, no tumour cells in 70 per cent alcoholic fixation.

27th and 28th April '61 : The temperature has settled down to normal, but has again relapsed on the 29th night. *30—4—'61 :* Chloromycetine 2 G. per day added to one G. of streptomycin. *1—5—'61 :* No change in the temperature and in the sputum and the severity of the cough which, on occasions, has to be controlled with oral physeptone 5 mgs. t. d. s. or 5 mgs. I. M. b. d. or sometimes 1/6 grain morphia. Streptomycin stopped and one G. of Tetracycline hydrochloride added to 2 G. of chloromycetine.

2—5—'61 : Sputum sent for culture.

HOSPITAL GENERAL Laboratoire de Microbiologie et de Serologie Numero d'ordre : 589	Salle : Depot of Infectious Diseases Nom : Rajagopal Chetti Profession : Age et sexe :
Nom du Medecin : H. A. Satya Joseph Produit envoye : Sputum Orientation clinique : Consolidation middle and lower lobe of right lung Examens demandes : (1) Smear for : (a) A. F. B. (b) Freidlander's pneumo bacillus, etc. (2) Culture for Friedlander's etc. Pondicherry, le 2—5—'61. le Medecin traitant, Sd. H. A. Satya Joseph.	Reponse du Laboratoire. No. A. F. B. seen in the smear. Organisms morphologically resembling streptococci and Friedlander's bacilli isolated. Sd. Goyal, le Chef du Laboratoire. 3—5—'61.

REPORT.

Name: Rajagopal Chetty Ward & Bed No. O. P. Reg. No. 461/61.

Date: 9—5—'61. Requested by:

Dr. H. A. S. Joseph

Nature of material sent: Sputum in 70% alcohol.

Micros: Section does not show any malignant cells.

Sd. Malathy P.
for Professor of Pathology.

Result: Friedlander's bacilli and streptococci isolated.

Total W. B. C. repeated: 15000 per c. m. m. shooting up from the initial 9000 per c. m. m. *Diff. count:* Poly 85 per cent and lympho 15 per cent. On the night of 2—5—'61, the temperature shot up to 103·5° F, the patient getting a severe rigor. At once Riverin or Methyl Pyrollido Tetracycline 250 mg. was given I. V. and the temperature came down the next morning and continued to remain so till he was discharged. From 3—5—'61 to 10—5—'61, he was put on a maintenance dose of 1 G. of Tetracycline hydrochloride daily and 1·5 G. of Chloromycetine daily. The lung condition was found to have improved well clinically at the time of discharge. A repeat x-ray done on 10—6—'61 shows a complete clearance of the lesion.

DISCUSSION:

As seen by the course of fever not responding to reasonable doses of penicillin, but responding to streptomycin, the primary infection was due to Friedlander's, but relapsed again due to secondary streptococcal infection, both the infections ultimately completely controlled by a single injection of Riverine followed by two combined broad-spectrum antibiotics for one week. X-ray taken before the relapse shows widespread consolidation involving most of the left lung – such a type of x-ray is characteristic of Friedlender infection. In addition, bilateral affection, very slow clearing of the shadows, with residual cavities, with fibrosis (mistaken for tubercular infection) or frank abscess formation, are all characteristic features of this infection. But in this case, the radiological improvement is complete in one and half months as shown by the subsequent film. His clinical recovery, in spite of relapse, was also quick due to a proper understanding of the nature of the infecting organisms and hence administering appropriate antibiotics. But, admittedly the delay in sputum culture is due to immediate non-availability of facilities.

Recording the incidence of this infection causing lobar pneumonia, no figures are available to my knowledge in Indian literature. On seeking information about this aspect, I am given to understand that the classification has not been made according to the infecting organisms. But in my humble opinion, it should be done at least on those cases which do not respond to reasonable doses of penicillin, so that the rare but grave infections may be brought to light.

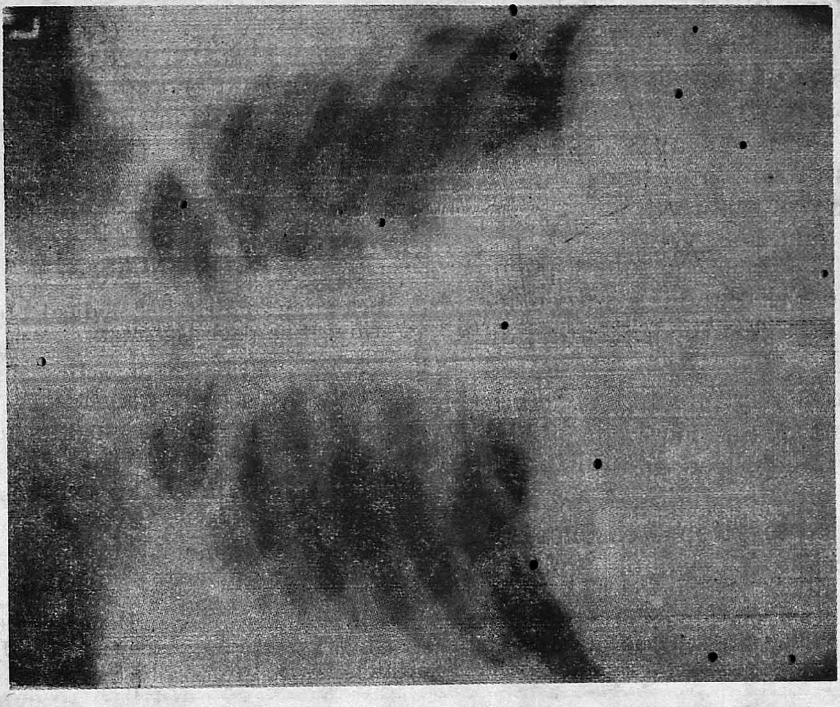


FIG. 2

Same case — after treatment (10—6—1961) showing complete clearance of the lesion.

FIG. 1

X-ray Chest on admission (25—4—1961) showing massive pneumonia — left lung.

Regarding foreign literature, it is rare in England (Scadding). Solomon (1937) gives a figure of 0.6 per cent of 5000 cases of pneumonia. Hyde (1943) gives it as 1.6 per cent and from that time onwards sporadic case reports of lung abscesses due to the infection are reported.

Summary: (1) A case of lobar pneumonia due to Friedlander's infection, complicated by streptococal infection is presented. This case presented itself as a massive pneumonia clinically without the typical bronchial breathing. It has been differentiated from pleural effusion and malignancy; by pleural exploration, absence of malignant cells in alcohol sputum and by the subsequent uneventful recovery of the patient. (2) More cases may be recognised if this serious infection is kept in mind and proper investigation instituted. (3) A brief review of the radiological findings and literature has been made.

REFERENCES

1. Scadding: British Medical Journal, Nov. 1949, page 1125.
2. Thomas and Brewster; British Medical Journal, October 11, 1952, page 817.
3. Barber M. D.; British Medical Journal, October 4, 1952, page 752.
4. Price; Text Book of Medicine, 56th edition on appropriate chapter.
5. Zinsser Micro-biology by Smith (latest edition) appropriate chapter.

* The sputum, culture report, etc. has been done in the Microbiology Department of the neighbouring State Hospital of Pondicherry by the kind courtesy of Dr. Joseph, M. R. C. P., Physician attached to the hospital.

NEWS AND NOTES

HONG KONG PHARMACEUTICAL FIRM RESTRAINED FROM SELLING LEDERKYN

HONG KONG — A pharmaceutical firm here has been permanently restrained from selling the drug sulfamethoxypyridazine in Hong Kong.

A consent decree, rising out of a complaint filed by American Cyanamid Company, enjoined T. W. Wu and Company from selling the drug in violation of a Cyanamid patent. Sulfamethoxypyridazine was developed by Cyanamid's Lederle Laboratories and is sold under the trade name of Lederkyn.

Justice William Alexander Blair-Kerr of the Hong Kong Supreme Court ruled that Wu and Company had infringed Cyanamid's Hong Kong patent No. 11 of 1958.

Justice Blair-Kerr ordered that Wu be permanently restrained from infringing Cyanamid's patent and "in particular from importing, selling, offering for sale or dealing in any product not of the plaintiff's manufacture, which in pharmaceutical terminology, is within the generic description 'sulfamethoxypyridazine'."

Further, Wu and Company was ordered to delete all references to the word 'Sulfamethoxypyridazine' from its packaging, catalogues, price lists, containers, labels and advertising matter.

ABSTRACTS AND EXCERPTS

THE GOVERNMENTS' ROLE IN MEDICAL CARE:

The role of the government in medical care is a topic over which controversy has raged for years. The controversy has been not only between governmental agencies and the medical profession but also between segments of the medical profession itself.

In some countries today medical care is under the complete control of government, while in others government has only a limited control. So far as I know, no country is completely free from government intervention. Wherever government has placed its foot in the door, history shows that more and more government intervention ensues.

If we define medical care as covering the whole field of health, then a certain amount of government participation is inevitable and necessary.

In the days when medicine was only an empiric art and preventive medicine (except in the case of small-pox) almost entirely unknown, there was no place or call for government in health matters.

As medicine became more scientific, it became more complicated. While the medical profession was willing to provide its services gratis to the indigent, it could not provide the means for modern diagnosis gratis. That meant that some governmental agency had to finance laboratory and x-ray facilities which could be used for the benefit of the indigent.

As medical science progressed, it became possible to provide prevention for many diseases, and this included the mass preventive measures known as "public health".

Environmental sanitation, the protection of food, milk and water supplies, eradication of disease-bearing insects, and the prevention of communicable disease are all procedures which can be made effective only on a community basis. They are beyond the authority of either the individual doctor or the organized medical profession. To be sure, the individual doctor can be an important agent in the prevention of communicable disease. Not only is the enforcement of the regulations necessary to protect the community is a function of the government, because it is the only agency having police power, but often the regulations can only be issued on the basis of legislation.

The next inroad by government has been in the care of the chronically ill. Tuberculous and mental disease are, as a rule, long drawn out disabilities. Also they are in most instances beyond the financial resources of the individual. Hence, state institutions for these conditions became established and more or less accepted.

Government, of course, has always been responsible for the medical care of the armed forces, and usually for their dependents. As an aftermath of war, there are many veterans who became "medical wards" of the government.

With government in the saddle directing public health activities, medical care of the indigent, chronically ill, the armed forces and their dependents, veterans, and providing certain laboratory services, it could only be expected that further inroads on private medical care would be the next step. So it proved.

Health soon became a political football. Politicians saw it as a means of building political fences. It is easy for politicians to promise "free" medical care to everyone from cradle to grave. Such promises lure votes. After election, if they cannot deliver the goods, they can—and always do—blame someone else; in the case of medicine, the "someone else" is the medical profession.

Throughout the world social security has been the modern nemesis of medicine. This is not because the medical profession objects to social security as such, but because they object to the way it is administered, namely, by a group of lay bureaucrats dealing with subjects in which they have no competence.

There is hardly a national medical association that has not been or is not now in a dispute with its governmental agencies on the subject of medical care. Almost everywhere we turn we find lay bodies endeavouring to set up standards, administrative procedures and levels of reimbursement for medical care without any consultation with the medical profession, or in utter disregard of its recommendations.

Granted that government has a certain role to play in the health field, the role affects only a part of and not the whole field. The doctor-patient relationship is still an important factor in medical care. The patient is still an individual and not a case number. Because Mr. A has gall bladder disease, that is no sign that he should be treated exactly like Mr. B who also has gall bladder disease.

When governments control medical care completely, patients are apt to have assembly-line care, the doctor-patient relationship is lost, and the patient loses confidence in his doctor, whom he is apt to look upon as his employee, rather than as his counsellor.

The World Medical Association recognizes that medical care may have to be rendered as a part of social security, but it demands that if it is so rendered, that it should conform to the well known Twelve Principles adopted in 1948 and reaffirmed on several occasions. These principles have been used by many member associations as a basis for their demands in

discussions with their governments. Sometimes these principles have been accepted and sometimes not, but they still stand as the ideal basis of any medical care plan which national legislation requires to be administered under social security.

—*World Medical Journal, July, 1960—Secretary-General's Page,*

* * * *

INVESTIGATION AND TREATMENT OF ANAEMIA IN GENERAL PRACTICE:

Panel discussion at B. M. A. Annual Clinical Meeting held at Canterbury, 15—4—1961 :

Chairman ... Dr. I. B. Morris, Pathologist, Canterbury

Panel Members ... Dr. R. R. Bomford, General Physician, London
Professor J. V. Dacie, Haematologist, London
Dr. Adrian M. Semmence, General Practitioner, Abingdon.

The panel all agreed that the adequate investigation of anaemias was now too complex for the G. P., and that what was really necessary for the G. P. was easy access to a laboratory where the investigations could be carried out for him. It was recommended that venous blood should be taken for tests and that it should be collected in clean, dry syringes. Boiled syringes should be washed out in saline solution before use. The blood should be placed in a bottle with an anticoagulant such as the dipotassium salt of sequestrene or Wintrobe's oxalate mixture. At the same time as the blood was collected a smear should be made on a clean and dry slide (free of grease). The film should be spread by a smooth-edged spreader and fixed by drying in air. In an answer to a question on the reliability of the Tolqvist method, Professor Dacie reminded the audience that Tolqvist was a Swedish physician, and his method of comparing blood stains on blotting paper with standards was very crude and only likely to be accurate to the nearest 20% figure. Neither he nor the other members of the panel could recommend it for general use, even as a screening test. In this discussion Dr. Bomford noted that, clinically, the physician could only get within 50% of accuracy by looking at the patient's mucous membranes and skin.

Anaemia in Pregnancy

Does "pregnancy anaemia" exist? This question was answered in the negative by Professor Dacie and Dr. Bomford, but Dr. Semmence and the Chairman thought that it was a very important type of anaemia. Dr. Semmence's routine treatment of combining folic acid with iron enabled him to get the expectant mother's haemoglobin up to 80% in all cases. He used folic acid from the 29th week of pregnancy. Discussion then centred on the use of folic acid. Professor Dacie felt that pregnant women were already over-bombarded with pills and he was not in favour of its routine use in

pregnancy. Dr. Bomford was apprehensive of its cost, but Dr. Semmence pointed out that, given in the daily dosage of 20 mg. for 11 weeks (from the 29th week to term), the cost was only 10s.

Some disquiet was voiced in a question on the high proportion of positives in tests for occult blood in the faeces. Dr. Bomford tended to ignore the occasional "weak positive" and went all out to pick out the persistent "strong positives". Technically, Dr. Semmence used a modification of the Gregersen method, and Dr. Bomford recommended confirmation by the older guaiac method. Turning to the question of how far the general practitioner should go in investigating his patients with anaemia, the views of Dr. Semmence, the G. P., differed from those of Dr. Bomford and Professor Dacie, who work in hospitals. Dr. Semmence was content to exclude serious bleeding by three negative occult-blood reports and then to await the response to adequate dosage with oral iron. The consultants looked on anaemia as a symptom and tried to investigate each case as fully as possible to discover the exact cause.

The use of "imferon" and "ferrivenin" in cases not responding to oral iron was questioned. In such refractive cases Dr. Bomford first tried to make certain that oral iron was in fact being taken by the patient (failure of the patient to take the iron tablets was the most usual reason for failure of an iron-deficiency anaemia to respond). In those cases where oral iron had been taken without response, he used imferon or ferrivenin. He preferred the latter, because imferon tended to be painful, to cause staining of the skin, and there was some risk of carcinogenesis. Although colour indices had been important in the past, the panel did not think that they were of any value now in the diagnosis of anaemias. In defining the type of an anaemia, the results of many investigations had to be taken together. The Chairman considered that the red-cell count was open to many errors, and, while Professor Dacie agreed, he did think it was of real value in polycythaemia. New electronic methods of blood-cell counting were costly, but saved a great deal of time.

Use and Abuse of Vitamin B_{12}

Certain practical procedures were raised by a question on whether vitamin B_{12} was ever justified in an incompletely diagnosed case of anaemia. Dr. Bomford thought that only very exceptionally should vitamin B_{12} be used without an accurate diagnosis first being made. He would do so in an elderly patient with severe anaemia who refused to be investigated. The other members of the panel agreed. The Chairman pointed out that an injection of vitamin B_{12} would completely alter the peripheral blood picture within four hours and make diagnosis extremely difficult. A member of the audience pointed out that vitamin B_{12} was a constituent of a "tonic" on sale to the public, and raised the question whether this substance should be a scheduled preparation. As a cause of psychiatric symptoms, the panel considered that megaloblastic anaemias occupied a very small place, but that where there was any clinical suspicion of anaemia, a blood count and smear were urgently indicated. Although there was evidence that oral preparations

of vitamin B_{12} were effective in maintaining patients with pernicious anaemia, the panel did not recommend this as reliable. The indications for the use of thyroid, ascorbic acid, hydrochloric acid, and other vitamins were only in specific disorders. Thus thyroid preparations were effective only in hypothyroid states and vitamins only in disorders where the deficiency was proved. Hydrochloric acid had no beneficial effects and the haphazard use of vitamins was useless, although Dr. Semmence said that, in his opinion, vitamin deficiencies were frequent in old women.

In treating iron-deficiency anaemias, Dr. Semmence first used ferrous sulphate, and if there were any side-effects he then changed to ferrous gluconate or ferrous fumarate. In answer to a question regretting that haematologists were monopolizing the management of anaemias, the panel felt that this state of affairs had to be accepted, as the subject had advanced so rapidly.

(B. M. J. April, 29, 1961, P. 1239).

IMPORTANT ANNOUNCEMENT

It is proposed to bring out the November, 1961 issue of our Journal as a special number on 'Neurology'. This number will be very useful to the general practitioners as a hand-book of reference on Neurology. Readers are specially requested to watch for the date of release of this special number – 21st November, 1961 and to preserve this copy for their reference.

MANAGING EDITOR.

In all stages of Intestinal Amœbiasis

PRESCRIBE

ENTROKIN

B. C. P. W. Iodochloroxyquinoline

LOW TOXICITY
HIGH THERAPEUTIC VALUE

★

Also useful in

OTHER INTESTINAL INFECTIONS
OF VARIOUS AETIOLOGY

★

BENGAL CHEMICAL
CALCUTTA - BOMBAY - KANPUR

ASSOCIATION NOTES

BRANCH NOTES

Anamallais Branch:

(i) The monthly clinical meeting was held on 15th April, 1961 with Dr. M. K. R. Jayachandran in the chair. Dr. M. P. Gundappa gave an elaborate talk on "Chronic Enlargement of Lymphatic Glands". There was a discussion on two cases of clinical interest presented by Dr. A Sreenivasan. Arrangements for the Annual Day celebrations in May were fully discussed.

(ii) The Annual meeting was held on 6th May, 1961 with Dr. N. S. Menon in the chair. After adoption of the Annual Report and statement of accounts the following office-bearers were elected for the ensuing year.

President	: Dr. K. John.
Vice-President	: Dr. M. D. Dissawala.
Hon. Secretary	: Dr. M. P. Gundappa.
Hon. Jt. Secretary	: Dr. K. Janardhan.

After tea, Dr. M. K. R. Jayachandran gave an interesting talk on "Typhoid and its Management".

(iii) A clinical meeting was held on 7—7—1961 with Dr. K. John in the chair. Dr. M. D. Dissawala gave an interesting talk on "Allergy and Serum Reaction" followed by a refreshing discussion.

Coimbatore Branch:

(i) The monthly meeting of the Coimbatore District Medical Association was held on Monday the 12th July, 1961 at 6 p. m. in the premises of the Association. Dr. G. T. Gopalakrishna Naidu, the President presided and spoke about the misery caused to the general public by the floods in several parts of our State and appealed to the members to do their duty and render service to the flood-stricken people.

Dr. S. Padmavathy, M. D., M. R. C. P., of the Lady Hardinge Medical College, Delhi, then gave a very interesting talk on "The Etiology and Management of Congestive Heart Failure" which was appreciated by the members.

(ii) The monthly meeting of the Association was held on Saturday, the 12th August, 1961 at 6 p. m. in the premises of the Association. The Vice-President, Dr. C. V. Ramaraj, M. B., B. S., presided.

A condolence resolution was passed touching the death of Dr. U. Krishna Rau, M. B., B. S., M. L. A., an oldest member of the Indian Medical Association and one of the past presidents of the Madras State Branch of the I. M. A.

Dr. A. N. Menon, M. B., B. S., D. M. R., D. M. R. D., M. S., F. C. C. P., Head of the Department of Radiology, Stanley Medical College and Hospital, Madras delivered an address on "Radiological Diagnosis of Congenital Heart Diseases" and illustrated his talk by projecting slides on the projector and x-ray pictures on the epidiascope.

Erode Branch:

(i) A meeting of the Indian Medical Association, Erode Branch, was held on 24—6—1961, Dr. E. S. Venkataraman presiding. Dr. D. Lakshmanan., M. S., spoke on "Common Surgical Emergencies — Some Aspects".

(ii) A meeting was held on 12—7—1961, Dr. L. K. Muthusamy presiding. Dr. P. N. Rangiah, M. D., Director, Department of Venereology, Government General Hospital, Madras, spoke on "The Problem of Trichomoniasis in Venereology".

Madurai Branch:

A monthly meeting of lhe Madura Medical Association was held on Saturday the 22nd July 1961 under the presidentship of Dr. Abdul Sathar, L. O, Madurai. Dr. Jayakumar, M.D., M.R.C.P. (Edin), Medical Officer, Infectious Diseases Hospital, Madurai, gave an interesting lecture on "Newer Trends in Medicine".

Madras City Branch:

The executive committee meeting of the Association was held at Hotel Ashok at 7-30 p m. on 3—8—1961. The following resolution was passed:

"This meeting of the Executive Committee of the Indian Medical Association, Madras City Branch learns with deep regret the proposed shifting of the Chemotherapeutic Centre attached to the Government T. B. Clinic at Chetput to Bangalore".

Nagapattinam Branch:

A clinical meeting of the Association was held on 2—7—1961 at 6 p. m. in the Government Hospital premises, Nagapattinam.

Dr. A. Thiagarajan, M. B., B. S., D. T. M., presided and Dr. Easwaran, Senior Medical Officer, Government Hospital, Nagapattinam spoke on "Vomiting" and demonstrated cases.

Nilgiri District Branch:

The monthly meeting of the Nilgiri District Branch of the Indian Medical Association was held on 12th August 1961 at the Pasteur Institute, Coonoor with Dr. D. S. Chandrasekhar, the Vice-President in the Chair.

Lieut. R. C. Ray of the Military Hospital, Wellington described his experiences of the successful expedition to the Nilakanta Peak of the Himalayas in May and dealt with the medical problems usually met with. Two excellent films were projected by the courtesy of M/s. Merck, Sharp & Dohme. These were very much appreciated; the meeting was well attended.

Ramanathapuram Branch:

The Annual meeting of the Ramanathapuram District Branch of I. M. A., was held at Virudhunagar on Sunday the 20th August, 1961 at 5 p. m. under the presidentship of Dr. S. Raju Ayyar. The following office-bearers were elected for the year 1961—'62.

President	:	Dr. S. Raju Ayyar, L. M. P.
Vice-President	:	Dr. T. Muthusamy, M. B., B. S.,
Secretary & Hony. Treasurer	:	Dr. K. C. Natarajan, M. B., B. S.

Dr. K. A. Ramalingam, F. R. C. S. of Madurai spoke on "Common Orthopaedic Conditions".

Dr. U. KRISHNA RAU

Born: 10—9—1900 Died: 3—8—1961

Doctor Udipi Krishna Rau was born on 10th September 1900. His father, late Doctor U. Rama Rau was one of the eminent medical practitioners and commanded a lucrative practice at Madras. He was very well known throughout Tamilnad not only as a saviour for the sick and the suffering but also as a true patriot.

Doctor U. Krishna Rau followed the foot steps of his father both as a medical practitioner and as a politician. He was a graduate of the Madras Medical College. He was having a lucrative practice at Madras and his name was a bye-word in every house in the harbour area. He was elected to the Corporation Council continuously for 25 years from the harbour constituency. He was elected as Mayor of Madras in 1947—48 during which time he has done many a good work to make Madras the city beautiful.

He was elected in 1952 to the Madras Legislative Assembly defeating his most powerful opponent, the Andhrakesari Sri Prakasam. He was included as a member of the Madras Cabinet during Sri Rajaji's Chief Ministership. He was holding the portfolio of Industries and Labour in such an able and efficient manner that his work during his ministership stands at present as the high light of his sincerity and efficiency. The E. S. I. Scheme was introduced in our State first in Coimbatore for the benefit of the workers when he was the Labour Minister.

After the general election in 1957, Dr. U. Krishna Rau was elected as Speaker of Madras Assembly which post he was holding till his death. Though he belonged to the congress party, he was conducting himself as a powerful and efficient Speaker, unparalleled in the history of Tamilnad to the appreciation and approbation of all the political parties in the Assembly. His sweet and persuasive

voice, jovial and pleasant personality, unprejudiced and decisive way of tackling the problems to the satisfaction of all, gained the confidence of all in and outside the legislature. He was placed in high esteem by every body who knows him..

As a member of the Commonwealth Parliamentary Delegation, he has travelled throughout the length and breadth of our country and abroad. During his global tour, he evinced keen interest in the parliamentary proceedings of various countries and he was considered as a worthy speaker, wherever he went. He got not only a good name for himself but also to the Tamilnad legislature.

As a medical man he was helping very many sick and suffering. Poor and downtrodden received help and encouragement from him. He was one of those who was responsible to shape the Madras State Branch of the Indian Medical Association and the Madras Clinical Journal. He was very keen and enthusiastic to set up a good foundation for the Madras State Branch and the Madras City Branch of the I. M. A. He was one of the architects of our State Branch. All his work in the medical field were sincere, unassuming and true. He was President of the Madras State Branch of I. M. A. for two terms and he relinquished his post when he joined Rajaji's Cabinet. Though he was out of the office as president, he was doing his best for the benefit of the Association and for the uplift of the status of medical men and medical profession. For a long time he was a member of the Working Committee of the Central I. M. A.

He was a member of several social organisations in the Madras City. He was connected with Indian Red Cross, Rotary Club and several cultural and sangeetha sabhas. As one keenly interested in sports, the sports clubs and associations found in him a good and trustworthy associate. He was an effective member of the congress party wherein his honesty and straightforwardness played a decisive part second to none.

After his father's sudden death, he took up the editorship of the Antiseptic, a medical journal, which has got one of the largest circulation among medical men. He was also a member of the Editorial Board of the Madras Clinical Journal.

He hails from a respectable noble family of South Kanara but has continued to be a citizen of Tamilnad. He belongs to our noble profession and all the members of his family - brother, son and son-in-law - are wedded to our noble profession.

In his death we have lost a sincere worker, a good doctor, an efficient speaker, a valuable friend, guide and adviser. Though he is dead and gone and disappeared from our midst, yet the work he has done and achieved to the country will stand as a monument for hundreds of years to come for his sincerity, honesty and straightforwardness.

May his Soul rest in Peace!

Lt. Col. T. S. SHASTRY, I. M. S., (Retired)

Born : 25—12—1887 Died : 29—6—1961

It is with deep regret we have to record the loss of one of the chief architects of the Indian Medical Association, who had toiled hard to organise the several District Medical Associations in South India, Lt. Col. Tadepalli Shankara Sastry who hails from the Guntur District of the then Madras Province-now Andhra Pradesh was born at Tadepalli and educated at the Guntur High School, where after matriculating came to Madras to join the Madras Christian College to finish his educational career. After passing the F. A. examination, he entered the Madras Medical College and came out successful by obtaining the M. B. C. M., degree in the year 1913. He went to London for I. M. S., and passed the examination. He had volunteered for the first world war. He had also served in the second greatwar in various capacities on field service in Egypt and Sudan. He had headed the Malaya Mission on behalf of the Government of India with a band of doctors in the year 1945. He went to Austria in the year 1928 for a course in E. N. T.

Col. Sastri was nationalistic in his outlook and served in campaigns affecting the nation. He was a member of the Indian National Congress (primary qualified and effective member). He had collected funds for the late Andhra Ratna Duggirala Gopalakrishnayya, attended on Potti Sriramulu during his fast along with his friend and colleague, the late Bulusu Sambamurti and had taken a special interest in looking after the welfare of the political prisoners both at Tiruchirapalli and Vellore in the years 1931 and 1932. A habitual wearer of Kaddhar ever since the year 1920 except in military service. He had served as District Medical Officer in various districts in South India as Tinnevelly, Salem, Nellore, Kakinada, Masulipatam and other places and established the district branches on a sound basis. He was the foremost in introducing Joint Annual Conferences of the neighbouring districts. He was a forceful speaker in English and Telugu and a great Sanskrit scholar. He knew Hindi. He was the moving

spirit in all the medical conferences. He was the Vice-President of the parent body of the Indian Medical Association, President, Madras City Branch and of all the district branches when he served as District Medical Officer under the British regime. His genius lay in bringing about the solidarity and unity in the rank and file of the profession when the District Medical Associations stood isolated only safegaurding and protecting the interests of members in government service. Through his dynamic influence, these associations became merged with the Indian Medical Association thus excercising their independence in protecting and safeguarding the interests of the members of the entire profession. Thus all the credit goes to Col. Shastry as one of the chief architects of the Indian Medical Association. Yet another feather to his cap was during the British regime when there was a ban on the service members not to join the I. M. A., he had fought hard and got the ban removed. He had spread the message of the I. M. A., along with that veteran founder Col. Bholanath by opening as many branches by undertaking tour in South India. Though Col. Shastry belonged to the I. M. S., he had shown his independence by associating with all the members of the profession. Messages of condolence are pouring from far and near all over India to the members of the bereaved family. He has left behind his wife and three sons.

MAY HIS SOUL REST IN PEACE!

STATE SECRETARY'S CIRCULARS:

I. CIRCULAR No. 14/60—61 DATED 31—7—1961.

Sub : National Society for the Prevention of Blindness — formation of.

The Hony. Secretaries of all local branches of I. M. A. are informed that under the Presidentship of Rajkumari Amrit Kaur, the National Society for the Prevention of Blindness has been formed and registered under Societies Act XXI of 1860 with its Central Office at 11/8, Gangaram Hospital Marg. New Delhi-5. The Central Office, I. M. A. Delhi has by a circular, informed this office that this society is very anxious to have active co-operation with and from the I. M. A. and to ensure this, the society has, in its constitution, even provided for ex-officio membership of the society as well as of its Governing Council for the President of the I. M. A. or his nominee. Since many members of our Association may be interested in the objectives of this society, the contents of this circular may be brought to the notice of the members of your branch for their information. Your branch and members interested may get in touch with Dr. S. N. Mitter, Hony. Secretary of the Society, directly for further information.

II. CIRCULAR No. 16/60—61 DATED 31—7—1961.

Sub: Addressing of communications to the State Branch.

The Hony. Secretaries of all local branches are informed that there has been a change in the residential address of the Hony. Secretary of the State Branch of I. M. A. from 11/56, Thiruvenkataswami Road, R. S. Puram, to No. 2, FIFTH STREET, OPPOSITE TATABAD P. O., COIMBATORE-12. Although the office of the State Branch is located in the Medical Association Building, Krishnaswami Mudaliar Road, Coimbatore-2, yet the communications addressed to the Hony. Secretary of the State Branch of I. M. A. are by force of habit, being allotted to the postman in the R. S. Puram area, and after being redirected to the Hony. Secretary's new residence, are being delivered at the new address a day late. Even communications addressed to "Medical Association Building, Krishnaswami Mudaliar Road" suffer the same fate, in addition to the letters which some branches are still sending to 11/56, Thiruvenkataswami Road, R. S. Puram.

Therefore, in order to ensure prompt and correct delivery of all communications, the Hony. Secretaries of all local branches of I. M. A. are requested to kindly address, with immediate effect, all communications intended for the State Branch to

"Dr. M. P. Jesudasan, D. M. & S.,
Hony. Secretary, Madras State Branch, I. M. A.
No. 2, 5th Street,
Opposite Tatabad Post Office,
Tatabad, Coimbatore-12"

The kind co-operation of all branches is solicited in this regard.

REFRESHER COURSE FOR THE GENERAL PRACTITIONERS—THE COIMBATORE DISTRICT MEDICAL ASSOCIATION.

You might have already seen the announcement about the Short Refresher Course to be held during the month of October 1961 published in the Madras Clinical Journal (Vol. XXVIII, No. 2). I am glad to inform you that the programme is almost finalised as appended hereto, and the same is being announced in the columns of the Madras Clinical Journal this month.

Since the refresher course is meant mostly for the general practitioners, I invite you to participate in this course and make it a success.

The registration fee for the course is Rs. 2—00 for members of the Association and Rs. 5—00 for non-members. Kindly send me your remittance before the 25th of September 1961 and let me know any special subject or clinical problem which you would like the speakers to deal with. The morning sessions will be held at the Government Head-quarters Hospital, Coimbatore, and the afternoon sessions will be held at the premises of this Association.

It would also help me to know whether you will make your own arrangements or would like me to arrange for your boarding and lodging.

Necessary permission has been sought for from the Director of Medical Services, Madras, to permit the doctors in government service to participate in this course.

Kindly inform your other friends in the profession in your area in case this invitation does not reach them. Expecting your full and hearty co-operation.

Coimbatore, 9th Sept. 1961.

V. SRIRAMULU,
Hony. Secretary.

PROGRAMME.

Date	Time	Subject	Name of speaker
October, 1961			
7	10 A. M. — 1 P. M. 2 P. M. — 5 P. M.	Medicine	Dr. K. V. Thiruvengadam, M. D.
8	10 A. M. — 1 P. M. 2 P. M. — 5 P. M.	Medicine	Dr. R. Subramaniam, M. D., M. R. C. P.
14	10 A. M. — 1 P. M. 2 P. M. — 5 P. M.	Surgery	Dr. R. Sundararaman, M. S.
15	10 A. M. — 1 P. M. 2 P. M. — 5 P. M.	Surgery	Dr. A. S. Ramakrishnan, M. B., M. S.
21	10 A. M. — 1 P. M.	Paediatrics	Dr. V. Balagopala Raju, M. B., B. S., DCH.
	2 P. M. — 5 P. M.	Midwifery	Not yet finalised.
22	10 A. M. — 1 P. M.	Otolaryngology	Dr. M. V. Kurian, M. B., B. S., D. L. O., M. S.
	2 P. M. — 5 P. M.	Opthalmology	Dr. K. S. Subramaniam, M. B., B S., D. O., F. R. C. S.
28	10 A. M. — 1 P. M.	Orthopaedics	Dr. M. Natarajan, M. B., M.Ch., F.R.C.S.
	2 P. M. — 5 P. M.	Tuberculosis	Not yet finalised.
29	10 A. M. — 1 P. M.	Dermatology	Dr. Maj. G. A. Naidu, M B., B. S., F. D. S.
	2 P. M. — 4 P. M.	Venereology	Dr. M. C. Rama Ayyangar, B. A., M. B., B. S , D. V.
	5 P. M. — 6 P. M.	Social & Preventive Medicine	Dr. S. Henry Moses, M.B., B S., D. T. M., B. S. Sc., M. P. H., M.Sc.

IFCOCID
(TABLETS)
FOR STOMACH DISORDERS OF HYPERACIDIC ORIGIN
IFCOCID
INDICATIONS: GASTRIC ULCER, HYPERACIDITY, GASTRITIS, ACID DYSPEPSIA & FLATULENCE
INDO-FRENCH PHARMACEUTICAL CO., CATHOLIC CENTRE, MADRAS-1.

SOMINAL
[TABLETS]
A SAFE ANALGESIC - SEDATIVE
CONTAINS:- BARBITONE, AMIDOPYRIN & CAFFEINE.
SOMINAL
SOMINAL
FOR ACUTE PAIN OF RENAL COLIC, RHEUMATISM, GOUT, SCIATICA, ECLAMPSIA, ETC.,
INDO-FRENCH PHARMACEUTICAL CO., CATHOLIC CENTRE, MADRAS-1.

HEALTH'S

ZYMOTONE

A REALLY BROAD SPECTRUM NUTRITIONAL TONIC – REMARKABLE METABOLIC AND ANABOLIC AID TO VIGOROUS HEALTH AND LONGER LIFE FOR ALL PATIENTS

Each 30 ml. contains

Diastase ...	500 mg.	Niacinamide ...	50 mg.
Pepsin ...	125 mg.	Panthenol ...	2 mg.
Papain ...	75 mg.	Vit. B_{12} ...	4 mcgm.
Proteolysed Liver ...	250 mg.	Inositol ...	100 mg.
Proteolysed Casein ...	250 mg.	Betaine ...	100 mg.
Ext. Yeast ...	200 mg.	Cal. Glycerophos. ...	300 mg.
Vit. B_1 ...	3 mg.	Manganese	
Vit. B_2 ...	2 mg.	Glycerophos ...	10 mg.
Vit. B_6 ...	1 mg.	Alcohol ...	15% v.v.

ZYMOTONE Provides:

1. Digestive Enzymes to aid digestion
2. Whole natural B-Complex from Liver & Yeast plus Crystalline B factors
3. Lipotropic agents in maintaining Liver function and to prevent vascular degeneration
4. Amino-acids & valuable nutrients from animal proteins to build up physical and nervous system
5. Vitamin B_{12} and Minerals as tissue and blood building factors

Packings:
110, 225 and 450 ml. phials

INDIAN HEALTH INSTITUTE & LABORATORY LTD.
1, Health Institute Road, Calcutta-28